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# The Technique of Open-Drop Administration of Vinyl-Ether

LEVON M. SAGHIRIAN, D.D.S., Philadelphia

A GREAT AMOUNT of experimentation has been done since Leake and Chen<sup>1</sup> in 1930 demonstrated the anesthetic properties of vinyl-ether. Ruigh and Major<sup>2</sup> in 1931 prepared pure vinyl-ether. Owing to its high volatility and rapid deterioration when exposed to light and air, 3.5 per cent absolute alcohol and 0.01 per cent non-volatile oxidation inhibitor is added, the fluid sealed tightly in dark colored glass bottles and dispensed under the trade name Vinethene.

Since 1933 when Gelfan and Bell<sup>3</sup> pioneered in the human application by anesthetizing each other, extensive animal experimentation and clinical research on all types of surgery, including dental surgery has been conducted. In 1934 Goldschmidt, Ravdin, Lucke, Muller, Johnston and Ruigh<sup>4</sup> reported 461 cases. Marvin and Wesley Bourne<sup>5</sup> described the clinical use in all types of surgery, and in 1935 Sir Francis Shipway<sup>6</sup> reported 314 cases.

Since March, 1936, Goldman<sup>7</sup> has used vinyl-ether daily at the Eastman Dental Clinic of London, reporting up to April 30, 1937, a total of 1,342 cases on children. He prefers the closed method and has devised a practical apparatus for his technique.

<sup>1</sup>Leake, C. D. and Chen, M. Y.: The Anesthetic Properties of Certain Unsaturated Ethers, *Proc. Soc. Exper. Biol. & Med.* 28:151 (November) 1930.

<sup>2</sup>Ruigh, W. L. and Major, R. T.: The Preparation and Properties of Pure Divinyl Ether, *J. Am. Chem. Soc.* 53:2662, 1931.

<sup>3</sup>Gelfan, S. and Bell, I. R.: The Anesthetic Action of Divinyl Oxide on Humans, *J. Pharmacol. & Exper. Therap.* 47:1 (January) 1933.

<sup>4</sup>Goldschmidt, S.; Ravdin, I. S.; Lucke, B.; Muller, G. P.; Johnston, C. G.; and Ruigh, W. L.: Divinyl Ether; Experimental and Clinical Studies, *J. A. M. A.* 102:21 (January) 1934.

<sup>5</sup>Marvin, F. W.: Clinical Use of Vinethene, *Anesth. & Analg.* 14:257 (Nov.-Dec.) 1935. Bourne, Wesley: Vinyl Ether Obstetric Anesthesia for General Practice, *J. A. M. A.* 105: 2047 (December 21) 1935. *Canad. M. A. J.* 33:629 (December) 1935.

<sup>6</sup>Shipway, F. E.: Vinethene, *Brit. Med. J.* 1:70 (January 12) 1935.

<sup>7</sup>Goldman, V.: *British Med. J.* 2:122, 1936; *Proc. Roy. Soc. Med.* 30:891, 1937; Vinyl-Ether As an Anesthetic Agent, *British Med. J.* 2:1265 (December 25) 1937.

In 1936, Beach,<sup>8</sup> who has probably used vinyl-ether most extensively in the United States, reported 2,630 cases. Beach prefers the open-drop method in the following instances: (a) when used as a sole anesthetic agent, as in dental surgery; (b) as supplementary agent to nitrous-oxide to obtain increased relaxation, and (c) as an induction agent, especially for children, followed on with ethyl-ether.

## Open-Drop Technique

The technique of choice in the Dental Clinic of the Graduate Hospital of the University of Pennsylvania is the open-drop method. Patients, being mostly adults referred from other departments of the hospital, are instructed to report without breakfast: they are seated in the dental chair which is tipped backward. Cold cream is applied to the lips and adjacent tissues (Fig. 1).

1. The mouth prop, attached with string, is placed in position.

2. Eight layers of hospital gauze are placed over the mouth and nose of the patient (Fig. 2).

3. The chloroform dropper is used, and held close to the gauze (Fig. 3). Vinyl-ether is dropped in a circular pathway over the gauze at the rate of 60 to 80 drops per minute (Figs. 4 and 5). The left thumb of the anesthetist at first allows the dilution of vinyl-ether with air.

In my series of 150 cases, which

<sup>8</sup>Beach, E. W.: Further Experiences in the Scope and Utility of Vinethene Anesthesia in 2,630 Cases, *Anesth. & Analges.* 15:214, 1936.

were timed with a stop-watch<sup>9</sup> the ages ranged from 3 to 77, 15 per cent were under 13, 60 per cent under 50, and 25 per cent more than 50. In these cases, a stop-watch was used in timing. The results are shown in the accompanying table.

4. Four pieces of gauze are now discarded and the remaining four pieces doubled by folding, which again gives eight layers of gauze covering the nostrils alone (Fig. 6). The fluid is allowed to drop continuously to maintain an even plane of anesthesia.

5. The throat is packed and the operator proceeds with the necessary dental surgery. As a precautionary measure, the stringed gauze is used; this obviates the possibility of aspirating loose sponges (Figs. 7 and 8). Relaxation is prompt and effective. The mouth prop may be moved to the opposite side with ease, or even discarded. There may be an increased flow of saliva and mucous collection in the throat.

## Symptoms of Anesthesia

The usual signs and symptoms of anesthesia are observed (Fig. 9). Gleason<sup>10</sup> notes that the respirations are the most important single sign. They are somewhat rapid and shallow but smooth and of equal volume. The color is always good, provided a satisfactory airway is maintained. Be-

(Text continued on page 162)

<sup>9</sup>Sagharian, L. M.: Vinyl-Ether (Vinethene) Inhalation Anesthetic: Clinical Use in Oral Surgery, *D. Cosmos* 78:531 (May) 1936.

<sup>10</sup>Gleason, F. J.: Personal communication to the author, August, 1937.

Stop-Watch Timing of Anesthesia

Stage	Minimum	Maximum	Average
Induction	40 seconds	4 minutes 10 seconds	1 minute 49 seconds
Operative		14 minutes 45 seconds	2 minutes 4 seconds
Recovery	15 seconds	2 minutes 45 seconds	1 minute 5 seconds



Fig. 1—Mouth prop with string attached, placed in position. Chair is tilted backward. Cold cream is applied to lips and adjacent tissues.

Fig. 2—Eight layers of hospital gauze are placed over the mouth and nose. Left thumb of anesthetist allows dilution of vinyl-ether with air.

Fig. 3, 4, and 5—Case is started; dropper is held close to gauze.

Fig. 6—Gauze covers nostrils alone. Vinyl-ether is dropped continuously.

Figs. 7 and 8—String is attached to gauze pack in throat.

(Illustrations continued on next page)





Fig. 9—Usual signs and symptoms of anesthesia.

Fig. 10—Muscular relaxation. Face is flushed.

Fig. 11—Deep surgical stage of anesthesia; may be mistaken as light anesthesia.

Fig. 12—Typical vinyl-ether anesthesia; eyeball lacrimated and glassy in appearance.

Figs. 13 and 14—Recovery.

Fig. 15—Emergency: airway is in place; tongue forceps are applied.

*(Illustrations continued from preceding page)*



# Pain Control in Dentistry

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IN ALL APPREHENSIVE or nervous patients a *state of mind* is the basic condition to be treated. This nervousness may have a single cause or may arise from a combination of factors. Apprehension in a dental patient is usually due to the fear of being hurt. This fear may have been instilled by past experience of discomforts, ignorance of the impending procedure, or hearsay. The most effective and powerful treatment of such a state of mind is suggestion associated with determined elimination of the particular source of apprehension. It should be borne in mind that *the elimination of all discomfort for each patient*, not merely the eradication of certain types of pain, is the complete aim in pain control. Such a concept requires that all individual eccentricities and distastes should be observed and catered to by correction. A dislike for dental operations can be engendered by minor operative procedures that are not ordinarily regarded as a source of apprehension and discomfort.

## Suggestions to Eliminate Discomfort

1. The patient who has a distaste for gauze or cotton in the mouth can acquire a definite dislike for dental operations from its persistent use. For such patients the rubber dam and saliva ejector should be used.

2. The neat person will react adversely because of smeared lips or excessive quantities of saliva remaining in the mouth with sippy packs. The mouth of such a patient should be kept as dry and clean as possible by careful and immediate removal from the mouth of chips and amalgam carvings, for example.

3. The wiping of a prepared cavity with eugenol or sealing in a dressing whenever the restoration is to be inserted at a subsequent appointment reduces discomfort.

4. The use of a dentinal obtundent or of procaine anesthesia before setting an inlay eliminates a common source of distress.

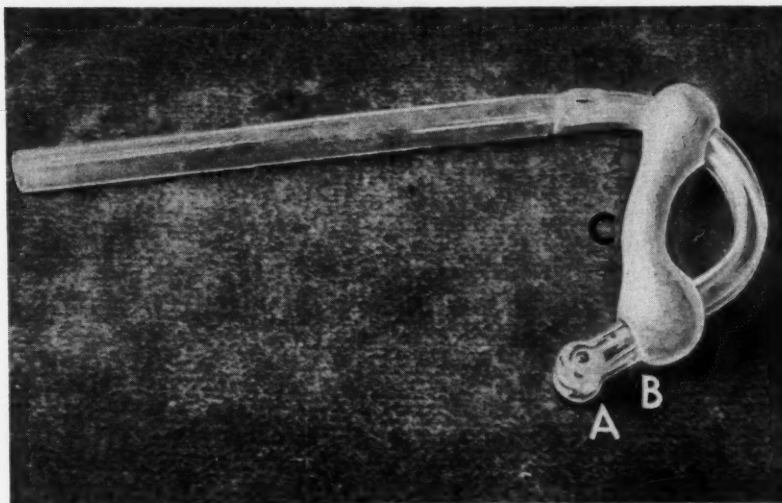


Fig. 1—Rubber rest to relieve pressure on floor of mouth. By moving up or down on glass ejector, the depth A—B can be adjusted to conform to any mouth, with cross extension C resting on incisal surfaces of teeth. This rest is left on ejectors and sterilized with them.

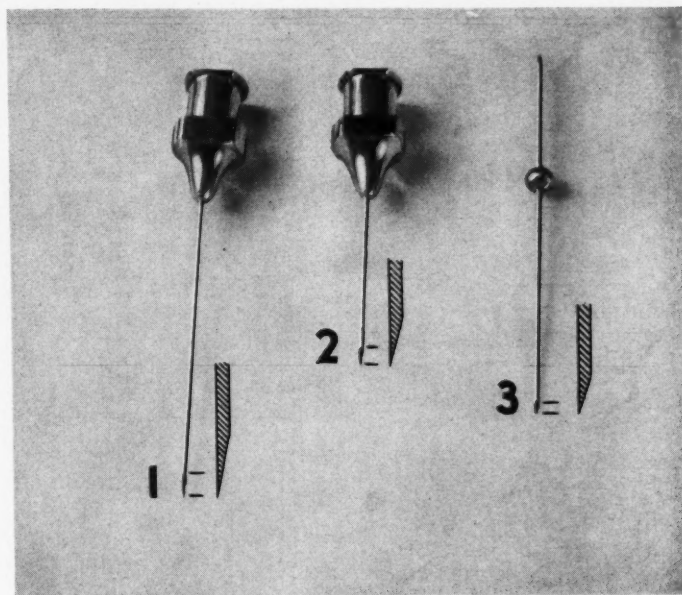


Fig. 2—Needles with different lengths of bevel; shortest bevel enables least depth of insertion of needle before anesthesia is obtained, thereby reducing tendency to painful insertion.

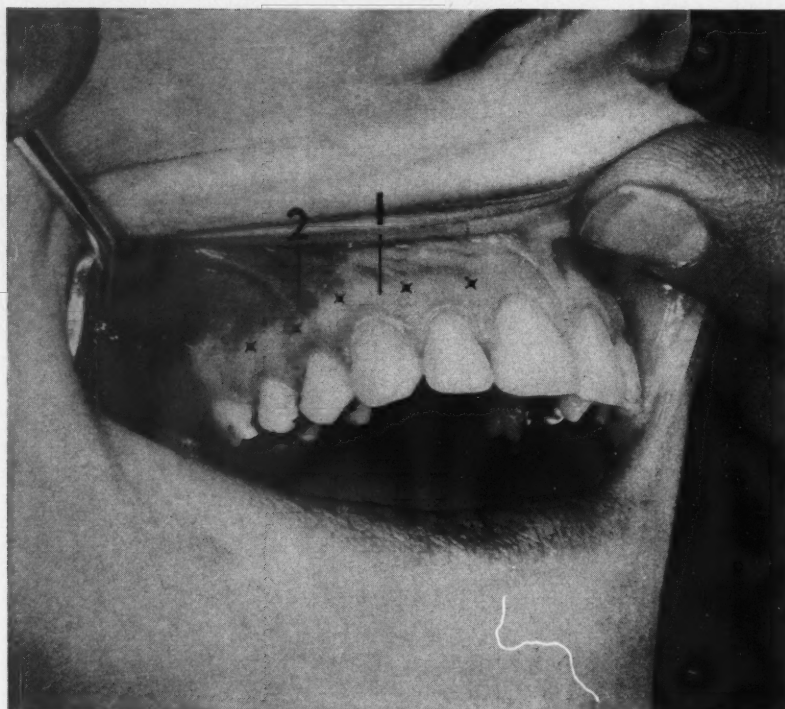


Fig. 3—Point of application of phenol for upper infiltration. Desired spot is at junction of gum tissue and mucous membrane, readily seen as light-colored (1) area just occlusal to the darker colored mucous membrane. This spot (2) is also the point of beginning insertion of the needle for infiltration which is then directed toward root apex of tooth to be anesthetized.



Fig. 4—Points of application of phenol for lowers.

5. It is preferable to use temporary cement as the seal in all possible cases instead of gutta-percha or stopping. When the latter is to be used, it should be only for a day or two, to reduce to the minimum discomforts resulting from gum impingement under occlusal stress.

6. The use of eugenol with an overcoating of some insulating varnish in the cavity is also indicated for greater comfort.

7. Whenever possible the operator should not pound an inlay or bridge into place, but push it; if greater pressure is needed, the patient himself may bite down on it.

8. A distressing source of discomfort to the patient is the stretching of the lips when dry. The use of some emollient gives surprising comfort.

9. If more than one cavity is to be done in one appointment, the one with the most difficult access and requiring the longest time should be done first.

10. The pressure of the saliva ejector on the floor of the mouth is another cause of pain. The simple device illustrated (Fig. 1) offers an easy adjustment to fit any variation in depth of the floor and any location in the mouth, with the weight of the tube and ejector transferred to the teeth.

With present technique and equipment there is little excuse for serious discomfort during dental operations other than the vibration and noise of burs or instruments and the discomfort of holding the mouth open.

11. Preoperative medication is for the most part unnecessary. Occasionally, in extreme cases of nervousness, premedication may be indicated. Routine use of a sedative has been discarded because most patients forget to take it at the proper time. It is of little value in dealing with the mental state as compared with other factors to be discussed. When a sedative must be prescribed, the most satisfactory method is for the patient to take three fourths of a grain capsule of pentobarbital sodium about an hour before the appointment, or from twenty minutes to a half hour before if the capsule is pricked through each end to afford quicker absorption. Once the source of apprehension has been eliminated, however, relaxation is usually visible and prompt.

12. Postoperative medication, espe-

cially in exodontia, is an aid of inestimable value. In any case in which pain is anticipated, some medical relief should be given. In average cases, one or two tablets of the usual phenacetin-caffeine-acetylsalicylic acid (5-10 grain) compound are effective. Wherever considerable pain is anticipated, its use in conjunction with amidopyrin (pyramidon) 5 grains every other dose, or codein is advisable. These should be dispensed by the operator except in the case of codein when it is advisable to have a prescription from the family physician. The first dose is always given immediately after completion of the operation so that its effect coincides with the dissipation of anesthesia. Later doses at two or three hour intervals are advised as required.

In general the greatest and most common causes of trepidation on the part of patients are: the discomforts of lengthy appointments; the pain of cavity preparation; the discomforts of matrix and separator application; pressure of materials, such as wax and modeling compound in taking impressions of cavities; needle insertion for procaine injections; exodontia and its sequelae. In other words all steps of operative dentistry from beginning excavation of the cavity to the insertion of an amalgam restoration; through the preparation of the wax model or impression of the cavity for an inlay to its cementation; and preparation and impression for crowns—all can be and usually are a source of discomfort and of varying degrees of pain. Therefore, in order to have a relaxed patient in an easy, fully cooperative state of mind, a procedure which renders all such phases of operative dentistry painless is not only desirable but necessary.

The ideal accomplishment is a normal, conscious, and completely cooperative patient, comfortable and relaxed, presenting no unpleasant after effects and no operative handicaps to the operator. The following suggestions and technique attain such a result by eliminating some of the commonly recognized disadvantages and obstacles.

In highly nervous or sensitive patients, a semi-recumbent position in the chair and the administration of a dose of aromatic spirits of ammonia or valiolol before injection are val-



Fig. 5—Insertion of needle. A two-point contact of the needle—(1) phenol spot and (2) point of fingers of hand opposite to that holding syringe. Gives absolute control so that no jerk, forward spurt, or wobble results, but a smooth, gradual, and imperceptible penetration of the needle can be made. *Needle must be sharp.*

uable adjuncts of treatment. Slow injection and the type of solution are the most important factors in effective treatment.

Most patients dislike the sensation of swelling and numbness involved with anesthesia by infiltration and block methods. After-pain is another source of annoyance and is a frequent sequel. Its occurrence seems to depend on individual tissue tone. Some patients never have it, whereas others always have it; still others will have it occasionally. Post-injection swelling is another source of discomfort. Whereas technique has a vital relationship to this reaction, there are individual peculiarities of susceptibility here likewise.

#### Discomforts of Long Appointments

Posture greatly affects the comfort of the patient, especially in long appointments. Adjust the chair to conform to the sitting habits of the patient. If adjusted to the theoretically correct posture, he will be uncomfortable and will tire more quickly. If he sits "on the back of his neck" at home, let him sit "on the back of his

neck" in the dental chair. If the patient cannot be comfortable without crossing his legs, let him do so. Correct standing or sitting posture calls into play certain muscles, some of which do not function in incorrect positions. If one not habitually accustomed to using them is required to assume such positions, strain on little used muscles takes place with resulting early fatigue. In the case of long appointments this can be the cause of considerable restlessness.

#### Consideration of Topical, General, and Local Anesthetics

Topical application of dentinal obtundents at their best will never be wholly satisfactory because they can eliminate only one source of discomfort, namely, excavation. The limitations of use and the need for recurrent application as the depth of excavation progresses are further disadvantages. The length of time for its administration to meet all the desired conditions, in addition to the handicaps to the operator and amount of anesthetic used make general anesthesia or analgesia impractical for



general use, particularly inasmuch as analgesia is effective in only 85 or 90 per cent of cases.

The procedure to be described in the use of local anesthesia in addition to the use of mounted stones wherever possible to reduce unpleasant vibration makes painless all phases of operative dentistry, including pulp extirpation, so that the patient is calm and relaxed.

#### Procaine-Epinephrine (Local Anesthetic of Choice)

There have been several objections to the general use of procaine-epinephrine in operative dentistry on the part of both the operator and the patient. To the operator the principal objections have been uncertainty of anesthesia, and often having to wait too long for anesthesia to develop. In both cases more difficulty is experienced for cavity preparation and pulp extirpation than for extractions.

Patients have presented the following objections: fear of the needle, general reactions of tachycardia or syncope, after-pain, and swelling. Many patients prefer pain to these experiences. On the other hand, however, despite such drawbacks, other patients seem willing to endure swelling and after-pain rather than the discomforts of dentistry done without the use of a local anesthetic.

#### Hypodermic Needles

In Fig. 2 is shown different lengths of the bevel of hypodermic needles. There is a wide variation in this fea-

ture. Experience has proved the advantage of the short bevel. This means that the minimum depth of insertion is needed before injection of the anesthetic; thus the pain of insertion is reduced so much that often a painless injection even without the use of any topical anesthetic can be accomplished.

No thicker needle than 25 gauge should be used. Theoretically a 27 gauge is better and in many cases can be used successfully. But a 27 gauge needle often bends too easily to give the absolute control required for painless injections. The importance of sharp needles is self-evident.

#### Topical Anesthesia

Every type of topical anesthetic available has been tried. Poor penetration, uncertainty of results, time required, and frequency of sloughing and slow-healing ulcers after their use have caused them to be discarded, one by one. Five years' use of 95 per cent phenol has proved its superiority over anything else. It is unfailing in its positive results, quick in action, and, contrary to one's first impression, leaves no discomfort when properly applied.

##### Technique of Phenol Application—

1. With the area packed and dried, a pledget of cotton, a little larger in diameter than that of the needle, is dipped into the phenol with cotton pliers, and touched to the desired spot.

2. No pressure is used, the pledget being removed immediately after its application.

3. The phenol droplet remaining on the tissue is left until a definite white spot (Figs. 3 and 4) appears.

4. The spot is touched lightly with a dry cotton pellet to remove the excess phenol.

*Effect of Phenol*—In from ten to twenty seconds the phenol will cauterize to such a depth that the point of the hypodermic needle can be engaged painlessly in the gum tissue to the depth required for beginning injection of procaine-epinephrine.

This cauterized tissue offers a protection to the point of insertion of the needle after injection and in a day or two will be exfoliated, exposing a shiny healed spot; therefore the phenolized spot should not be neutralized with alcohol.

#### Insertion of Needle for Procaine-Epinephrine Anesthesia

*Location*—The point of insertion (Fig. 3) of the needle for infiltration is occlusal to the line of junction between the mucous membrane and gum tissue. It is desirable to have the puncture in gum tissue, as well as the spot of cauterization, because it is the fastest healing of tissues and no ulcer or other disagreeable sequelae result. Being firm, gum tissue also affords more definite control of the needle without the "drag" that soft, loose tissue causes by retreating before the needle. The only exceptions to this are palatal injections in the case of extractions, and in mandibular injections in which case the point

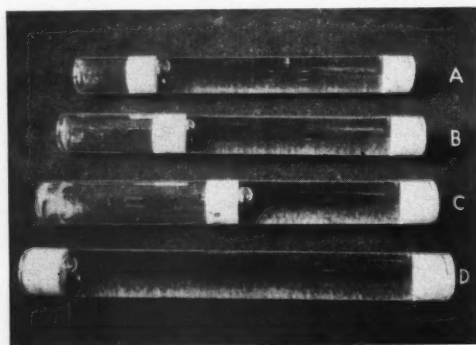


Fig. 6

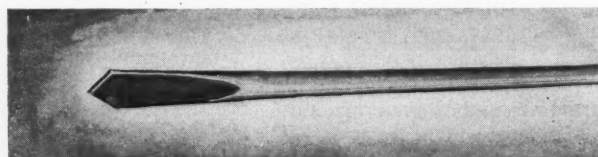


Fig. 7

Fig. 6—Average dose of procaine for intra-osseous anesthesia: (A) upper or lower anteriors (cavity preparation); (B) pulp extirpation of single-rooted teeth; (C) pulp extirpation of molars; (D) regular 2.5 cc. carpule. These doseages include amounts used for soft tissue anesthesia prior to bone perforation. In all cases of cavity preparation, less solution need be used; amount can be regulated according to size of cavity and time required for all necessary operations, including placement of restoration, taking impression for crown or inlay, and temporary sealing of cavity.

Fig. 7—Illustration of drill used (greatly enlarged). Should be same gauge as needle; should be resilient, with shank smaller than head for facility in removal. *Keep Sharp.* (Design of Eugene L. Schmitt, D.D.S.)

of application of phenol and insertion of the needle is lingual and distal to the internal oblique line.

**Packing**—In packing the mouth for this injection the pack is placed behind and above the upper second and third molars as well as buccal and lingual to the lower molars. The area to be injected is then dried with warm air.

The phenol should saturate the cotton pellet only enough to moisten the desired spot without trickling beyond the point of needle insertion.

**Insertion**—1. With a sharp, short beveled needle, engage the *tip* of the needle just inside the spot of tissue whitened by the phenol and at the margin so that the spot will include the full diameter of the needle end when completely engaged in tissue (Fig. 5).

2. When the tip is caught in the tissue, bring the syringe at such an angle that the full beveled end is pressed against the gum.

3. Start injecting the solution at once, inserting the needle gradually, always with the solution *ahead* of it, until the depth required for the particular type of injection is reached, when the necessary dose is completed.

4. It should be remembered that inasmuch as the solution is deposited *ahead* of the needle, deep insertion of the needle is definitely contra-indicated. In infiltration anesthesia the insertion of the needle from 1 to 3 mm. on labial and buccal surfaces is sufficient; likewise, in palatal areas, depending on the point of insertion; in mandibular injections, 1 cm. is sufficient.

This technique is reliably painless, and is used routinely without difficulty for children from 3 years of age upward as well as for adults.

#### Rate of Injection

Whereas the technique described eliminates pain and fear of the needle, the next most common objection to the use of procaine-epinephrine, the reactions of tachycardia and syncope, must still be overcome. There are several ways of eliminating these general reactions. The most important consideration is the rate of injection. *Procaine should be injected so slowly that the plunger can just be seen to move.*

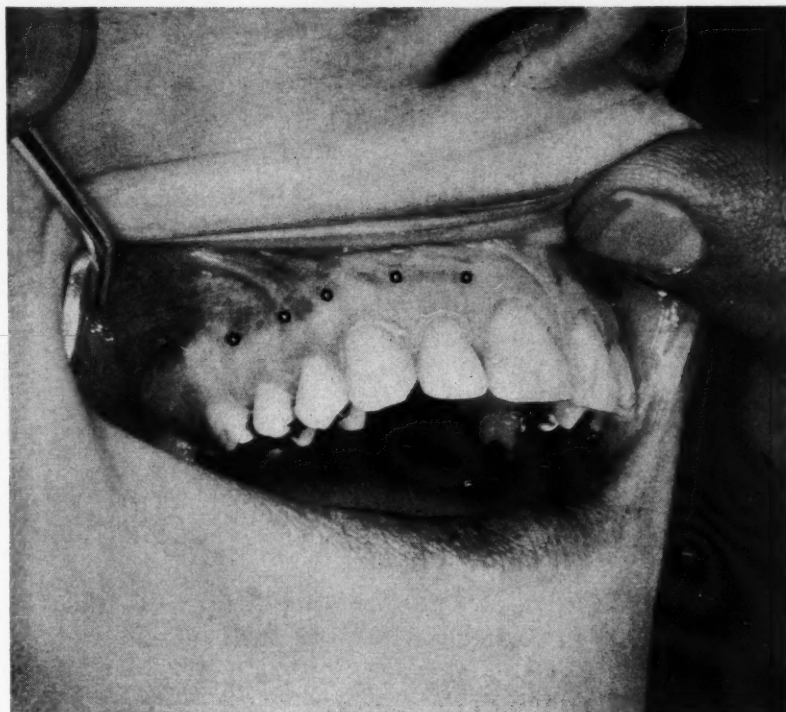


Fig. 8—Location of bone perforation for uppers, apical to thicker portion of process, in thin cortical plate.

#### Amount

Theoretically only the minimum amount needed for the particular purpose for which it is intended should be used. But there is such a wide variation in individual doseages that for general use and to meet the varied needs of cavity preparation, pulp extirpation, and extraction an optimum amount should be used to obviate the embarrassment, inconvenience, and discomfort occasioned by the use of an insufficient amount. This can only be determined according to the type of solution used. In the case of those incorporated with the minimum amount of epinephrine or with cobefrin, a good standard has been found to be 2.5 cc. for infiltration and about 3.5 cc. for mandibular block injections, although anesthesia probably could often be obtained with less.

#### Type of Solution

The type of solution most effective for the elimination of general reactions is that with a minimum of epinephrine or with cobefrin. These solutions give ample time for almost all types of cases in general operative

procedures and extraction, giving an average time of anesthesia of from forty minutes to an hour. In cases involving longer periods of time the injection of a larger dose of these solutions will give less opportunity for reactions than the use of a solution containing more epinephrine. In a general practice covering all types of operative dentistry and exodontia including impactions, no stronger solutions of procaine-epinephrine or cobefrin have been used since these products have been made available.

#### Intra-Osseous Injection

Over a period of three years, the intra-osseous injection has been made for cavity preparation and pulp extirpation wherever access has made it possible. This means usually from the second molar forward in the upper and lower jaws. In some small mouths, use has been limited to the first molars forward. Experience has proved conclusively the superiority of the intra-osseous injection to any other type for cavity preparation and pulp extirpation, and is used exclusively for such cases except when difficult access precludes its use. This



Fig. 9—Point of perforation for lowers. In all cases this location is preferable to a point farther apically, for it eliminates tendency of soft tissue curling on shank; the ridge of overlying thicker process also offers protection to point of perforation from subsequent irritation and injury from brushing.

technique of injection eliminates post-injection swelling and there is no after-pain. There is no diffused sensation of swelling or numbness. It is absolutely positive in its results and requires no waiting for anesthesia. Its use, in conjunction with the technique of needle insertion described and with the cobefrin solution of procaine, has eliminated every objection to the use of procaine. It enables a patient to have every step of operative dentistry done comfortably and painlessly—from opening the cavity, through its preparation to the insertion of the filling, even including the application of matrixes and separators. The difference between the average required dose for this type of injection and that for infiltration is best seen in Fig. 6; hence an economy in cost of procaine is effected. The most decided economy, however, is in the elimination of waiting time for anesthesia to develop and in simplicity of armamentarium.

#### Technique Used in Intra-Osseous Injection<sup>1</sup>

**Location**—The location for injection

and perforation (Fig. 8) is important. It is necessary to choose the point of easiest access and least resistance to perforation. In the case of molars, a point mesial to the tooth involved is chosen, because this is the easiest point of access. If both first and second molars are to be excavated a point midway between the adjacent distal and mesial roots is chosen. In all other cases the mesial location is first choice because of access and better control of drill and needle. Often, however, because of the close proximity of roots, or in the case of central incisors, the labial frenum, a distal injection is preferred. In many cases in which repair of lower third molars is decided on, this injection can be used successfully. Intra-osseous injection is first choice in every case in which access permits its use.

The best location occluso-apically in all cases is just apical to the denser process found extending from 2 mm. to 4 mm. beyond the neck of the tooth.

<sup>1</sup>Somewhat modified from technique of Eugene Schmitt, D.D.S., Manual of Local Anesthesia in General Dentistry, Cook Laboratories, Inc., Page 28.

Here the thinner buccal and labial plate of bone is found but is nevertheless close enough to the gum tissue, so that usually the same point where phenol has been applied for the needle can be used for the insertion of the drill.

**Needle Insertion**—The mouth having been packed and the phenol applied, as previously described, and the desired location chosen, the needle (a short 25 gauge nicked steel) is inserted with the technique illustrated, and 2 or 3 minims of solution are injected in the soft tissue.

**Perforation**—A long shank, bi-beveled drill especially made for this injection (Fig. 7), with the same diameter as the 25 gauge needle, is then placed in the straight handpiece. By the time this has been done the solution injected has anesthetized the point to be perforated, so that this perforation is painless. Without starting the engine, the drill is placed where desired and pressed through the tissue to the bone. The engine is then started. Not more than a half dozen slow turns of a sharp drill at the proper location are required to perforate the denser outer plate of bone (Figs. 8 and 9). The drill will spurt forward after the bone has been perforated because of the cancellated bone underneath. *Do not go farther.* As a rule a millimeter will be all the distance traveled. The patient will not be startled if the drill is turned slowly and stopped and withdrawn simultaneously with the perforation of the outer plate of bone.

**Injection**—Without changing the position of the packs or hand position, and preferably before any blood appears, the syringe which has been placed in the most convenient place on the bracket table is picked up and the needle inserted in the perforation just made. If bleeding has started, apply a pledget of cotton, so that the red spot of the perforation will offer ready indication for the proper point of insertion of the needle. Having inserted the needle, a few minims of solution is injected *very slowly*, the bevel of the needle being placed toward the tooth to be treated. Usually 0.5 cc. will be sufficient for single rooted teeth, for molars, 1 cc. In cases of pulp extirpation or lengthy preparation slightly more may be desired. In no case, how-



ever, is more than 1.5 cc. either needed or desired. These amounts include the solution used for anesthetizing the gum tissue. Preparation for porcelain jacket crowns, three surface inlays, and other lengthy procedures, including extirpation of pulps of molars, can be accomplished without haste with this amount of solution. A *slow injection* is a cardinal requirement in all cases, for the solution being rapidly absorbed, tachycardia can result if injection is rapid. As mentioned before the syringe plunger should move so slowly that its movement is barely discernible. The alkaline solution of procaine is impracticable in this technique, because of the small amount of solution required and the immediate development of anesthesia even with the acid procaine solution.

In all cases the long-shanked drill in the straight handpiece is preferred, for it offers a guide and indicator of the line of presentation of the syringe for injection into the perforation. By using a drill having the same diameter as the 25 gauge needle there is no back flow of procaine along the shank of the needle during injection. A beveled needle is preferred because of its offering less chance of clogging, which is the principal objection to a rounded or flat end needle. Even a beveled needle will sometimes clog. When this occurs, *always remove and free from clogging outside the mouth, then reinsert. Never force out the clog while in position in the perforation.*

After removing the needle and syringe and before removing the packs, thereby exposing the point of perforation to the saliva, touch the spot with 5 per cent mercurochrome or some other aniline dye antiseptic. After-effects should not develop if the area is packed, sterilized and anesthetized with phenol; if asepsis is maintained of instruments and solution, and mercurochrome is applied to point of injection and perforation. In three years' use no sequelae of pain or swelling have occurred, even when a Gates-Glidden drill with its larger perforation was used.

From experiences with this technique, post-injection sequelae of swelling and pain (the latter even after pulp extirpation) seem definitely to be largely due to individual

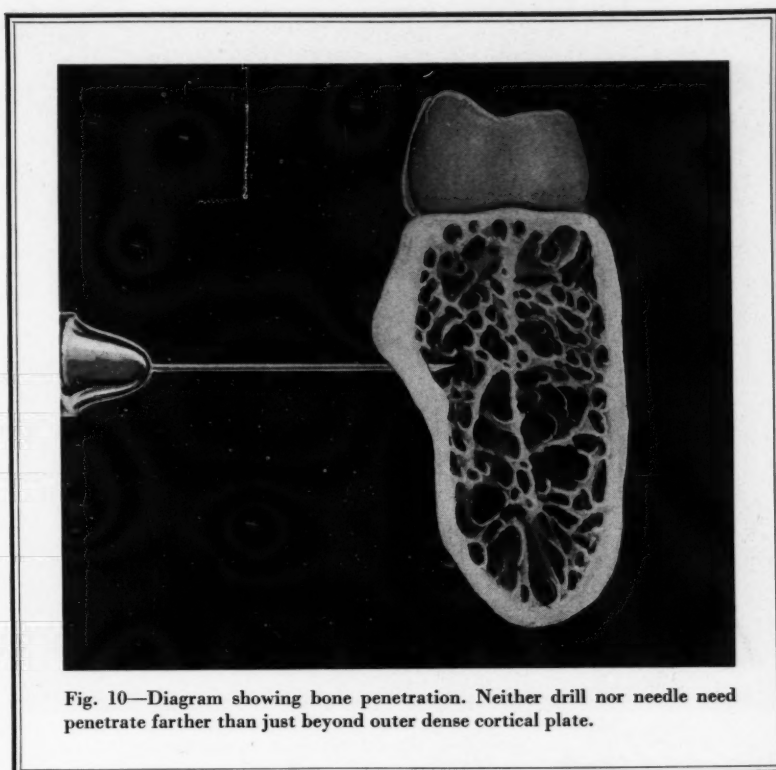


Fig. 10—Diagram showing bone penetration. Neither drill nor needle need penetrate farther than just beyond outer dense cortical plate.

soft tissue idiosyncracies of absorptive and reactive powers rather than due to some inherent property of procaine or epinephrine itself. This fact has been borne out further by experiences with injecting excessive amounts of procaine in different patients. Lack of asepsis and rapid injections, however, are self-evident causes of such sequelae.

Except in the rare cases of procaine idiosyncrasy, procaine anesthesia is the ideal medium for the complete attainment of a relaxed and comfortable patient in operative dentistry. Injections are painless; there are no after-effects; it is inexpensive; there is no loss of time in its use, and the proper technique insures desired results.

#### Exodontia

In reducing postextraction pain and swelling there must obviously be a minimum of trauma. In addition there are three other factors essential to minimizing and eliminating post-extraction complications: (1) saliva must not enter a socket during extraction; (2) solutions must not be used during extraction to wash sock-

ets; and (3) the socket and especially the alveolar process exposed must be protected as completely as possible. It is absolutely essential to pack the mouth with sterile gauze surgical packs, with complete elimination of saliva until the sockets are cared for and the patient ready to be dismissed.

Five years' experience with the use of sterile gauze to maintain visibility during extraction has proved its superiority over the former method of washing with some antiseptic solution.

#### Desirability and Care of Blood Clot

The best dressing for any socket regardless of size is a good clot. The attainment and preservation of a protective blood clot in the socket and over an otherwise exposed alveolar process is much more important and of much greater value than a pack or drain regardless of the medicament incorporated. All methods and types of packs and dressings have been tried, but the following procedure has given the most consistently benign results and since its exclusive use in the last five years, dry sockets rarely

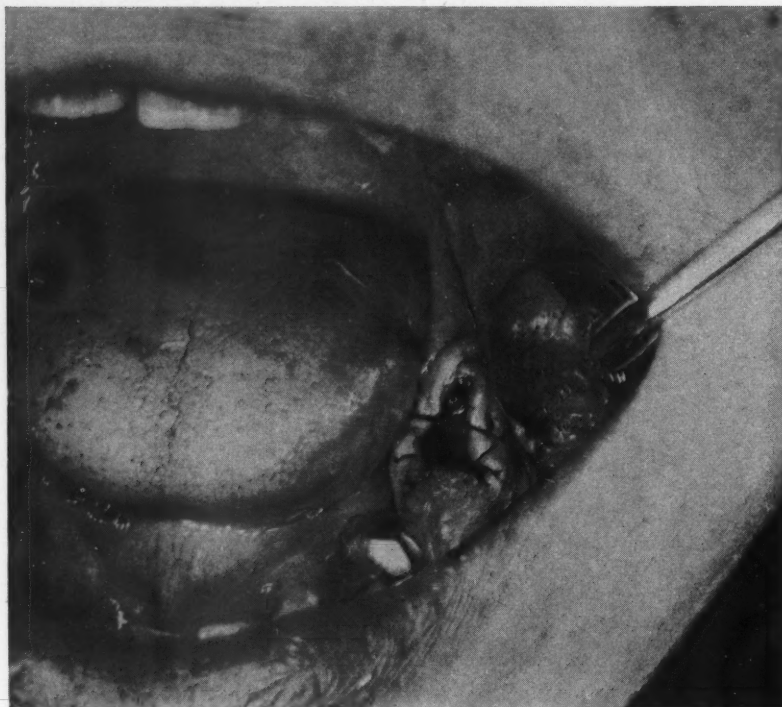


Fig. 11—Sutures placed after extraction. Illustration shows suturing without apposition of lips of socket, but mobility was present.

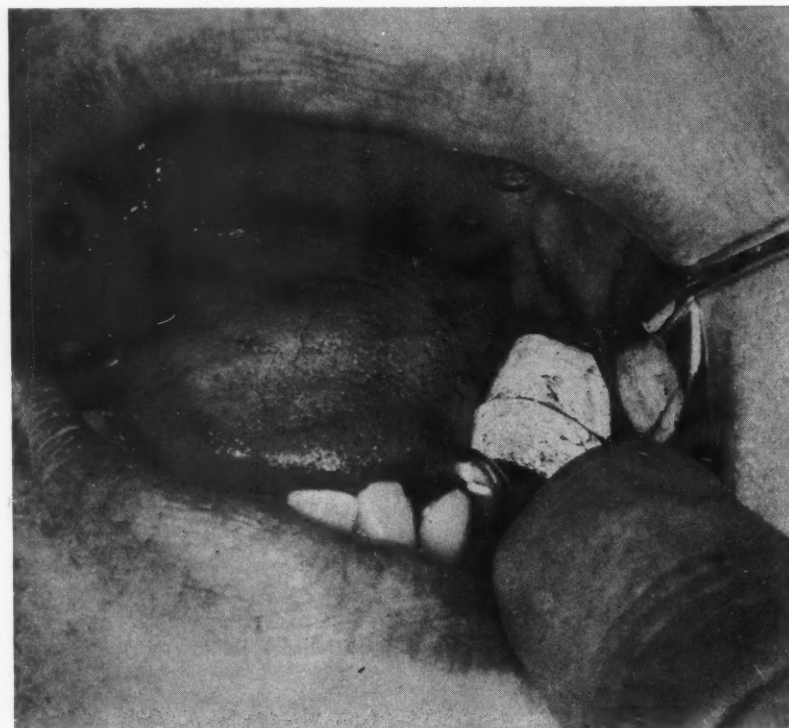


Fig. 12—Tape bandages in place. Far superior to cement packs or other dressings; there is no encroachment into sockets; no possibility of rubbing or other irritation to lacerated soft tissue.

occur. Swelling and after-pain have been appreciably reduced as well, even in the removal of impacted teeth.

Packing of the mouth is continued after the removal of the tooth or teeth. When a clot completely fills the socket orifice, the mobility of the gum tissue involved around the socket is then determined, and sharp edges and spicules of bone smoothed and removed. If mobility is present, sutures are placed in location in the number necessary to immobilize the gum and bring the lips of the socket as close to apposition as possible. When mobility is present, but apposition is not possible, suturing is done nevertheless in order to immobilize as completely as possible. Care is taken to have the needle perforations penetrate far enough, so that there will be no sloughing of tissue (Fig. 11).

Sterile adhesive tape is then cut sufficiently long to go well down on the lingual and buccal or labial aspects of the ridge and wide enough to cover the socket. If several teeth have been removed, enough strips of tape are cut to cover all the area involved. Each strip of tape is then sprinkled with any denture retention powder, so that it will stick to a moist surface. Five per cent mercurochrome is then applied over the sockets and ridges to furnish the moisture and then the strips of tape are pressed down and held in place until they stick (Fig. 12). Packs are then removed and the mouth is syringed gently with water, or the patient is allowed to rinse a little mildly, not vigorously.

These tape bandages are allowed to remain in place until they loosen themselves or until night when the patient can remove them. No rinsing is permitted the first twenty-four hours.

Immobility by suturing (Fig. 11) and protection by taping (Fig. 12) is much more satisfactory than cement packs or other dressings, for complete absence of irritation and more rapid and natural healing are possible. This procedure, in conjunction with the usual routine procedure of postextraction medication, has resulted in a marked reduction of postextraction discomforts.

*State Bank Building.*

# Prosthetic Obturators and Vela in the Treatment of Cleft Palates

FREDERICK J. METZGER, D.D.S., Buffalo

THERE IS A DEFINITE place in the field of dentistry for the construction of prosthetic obturators and vela. These appliances provide an invaluable service to patients with cleft palates. These patients are usually reluctant to present themselves for dental treatment unless it is of an emergency nature. The dentist is usually awed by the extensiveness of the malformation and is hesitant to attempt treatment. Consequently, there are many patients who go untreated prosthetically for this defect. It is certainly one place where a dentist can be of humane service. It is with this idea that a simple technique is presented here for the construction of a prosthetic obturator and velum for the closing of a cleft palate.

## Definitions

A review of the literature on this subject discloses a difference of opinion in the meaning of an "obturator" and an "artificial velum." For the sake of clarity in this paper, I shall use the terms as follows:

**Obturator:** An appliance adapted for closing or stopping up an opening, such as in the hard palate.

**Velum:** An appliance of vulcanite rubber used as a mechanical substitute for the soft palate.

## Classification

Probably the best classification of cleft palates and harelips is given by Fitz-Gibbon<sup>1</sup> who divides them into seven types: (1) cleft of the soft palate; (2) cleft of the hard and soft palate; (3) cleft of the hard and soft palate with single harelip; (4) cleft of the hard and soft palate with double harelip and detached premaxilla; (5) postoperative clefts; (6) edentulous, which may fall in anyone of the first four types; and (7) acquired: syphilitic, cancerous, and gangrenous stomatitis lesions. The types that con-

cern us most in dentistry are perhaps the last three. The patient usually has experienced several unsuccessful attempts at closing the cleft and goes to a dentist as a last resort, so that dentists see the postoperative type of case.

## Surgical and Prosthetic Closures

The prosthetic appliance to be described would, I believe, have even more success, if it could be placed before surgery is attempted, as the cicatricial tissue formed after an unsuccessful operation to some extent hinders the function of the velum. This can be done in few cases, because the majority of clefts are operated on during infancy in anticipation of a successful result. A successful surgically closed cleft always functions better than one closed with a prosthetic appliance.

## Prognosis

As far as the potential results of the closure of a cleft are concerned, either surgically or prosthetically, the patient obtains a great deal of personal comfort, because the mucus from the nasal membranes is carried to the nasopharynx and not allowed to drop on the tongue. The reverse is also true: food is carried back to the pharynx and prevented from being forced into the nasal cavity while masticating.

The improvement in speech is encouraging in children but rather slow in adults. After a surgical closure, the tissues are taut and constricted anteriorly, with the uvula usually partly or wholly missing, so that there is no contact of the soft palate with the posterior wall of the pharynx; thus, certain portions of the sounds escape into the nasopharynx just as they did before the operation. This is also true with a prosthetic appliance. If the velum is made to touch the posterior wall of the pharynx in the act of de-

glutition, it causes gagging, for the sensitive pharyngeal membranes will not tolerate the numerous contacts with any foreign material. There will also be an escape of a certain amount of sound through the nasal cavity.

The improvement in children is greater because their speech training is started before their vocabularies are established. They can be taught to use a vocabulary that will permit the use of simple words that are synonymous with the more difficult ones. Fitz-Gibbon also states: "The intellectual elements: intelligence, will, reason, and inspiration are all psychological factors to be considered. In cleft palate speech training, we are dealing with the psychology of speech as well as the pathology of speech." These intellectual elements are more amenable to development and guidance in children than in adults.

## Methods of Retention

The methods of retaining this appliance are numerous. When teeth are present, the cast clasp with occlusal rests seems to be the best appliance. In edentulous mouths, soft or velum rubber<sup>2</sup> is carried over the inferior turbinates to aid in retention. For deciduous teeth, Schuiringa<sup>3</sup> of Holland has developed a clever post and tube arrangement. The posts are attached to the obturator and the tubes to either a cast crown or orthodontic bands fitted to the teeth.

## Materials and Types of Joints

The materials used in prosthetic appliances of this type are vulcanite, gold, a pink denture base and one of the newer alloys. The obturator, or portion covering the area of the hard palate, is joined by a hinge to the

<sup>1</sup>Fitz-Gibbon, J. J.: Correction of Congenital Cleft Palate Speech by Appliances, D. Cosmos, 17:231-238 (March) 1930.

<sup>2</sup>Velum rubber: Caoutchouc gum with one fifth of its weight of sulphur which cannot be made hard, but merely tough and elastic, by vulcanizing.

<sup>3</sup>Schuiringa, J. A.: A New System of Fixation of Obturators, J. A. D. A. 15:412-422 (March) 1928.





#### CASE 1:

Fig. 1 (upper left)—Cleft.

Fig. 2 (upper right)—Appliance in place.

Fig. 3 (lower left)—View of appliance; nasal surface.

Fig. 4 (lower right)—Side view of appliance.

velum, or portion supplying the soft palate.

If gold or one of the newer alloys is used, the hinge is made a part of the casting; each section has half of the hinge, and the sections are joined with a small bolt.

If vulcanite or a pink denture base is used, the hinge (originally designed by E. Schnitzpahn of Buffalo) is made separately in gold and is countersunk in the material and attached by small gold screws. This union between the

two sections can also be made flexible by using soft rubber for the velum.

Allen<sup>4</sup> uses a ball-and-socket joint. The soft rubber deteriorates after contact with the oral fluids which is a disadvantage. The ball-and-socket joint would not appear to be so strong or so flexible as a hinge joint.

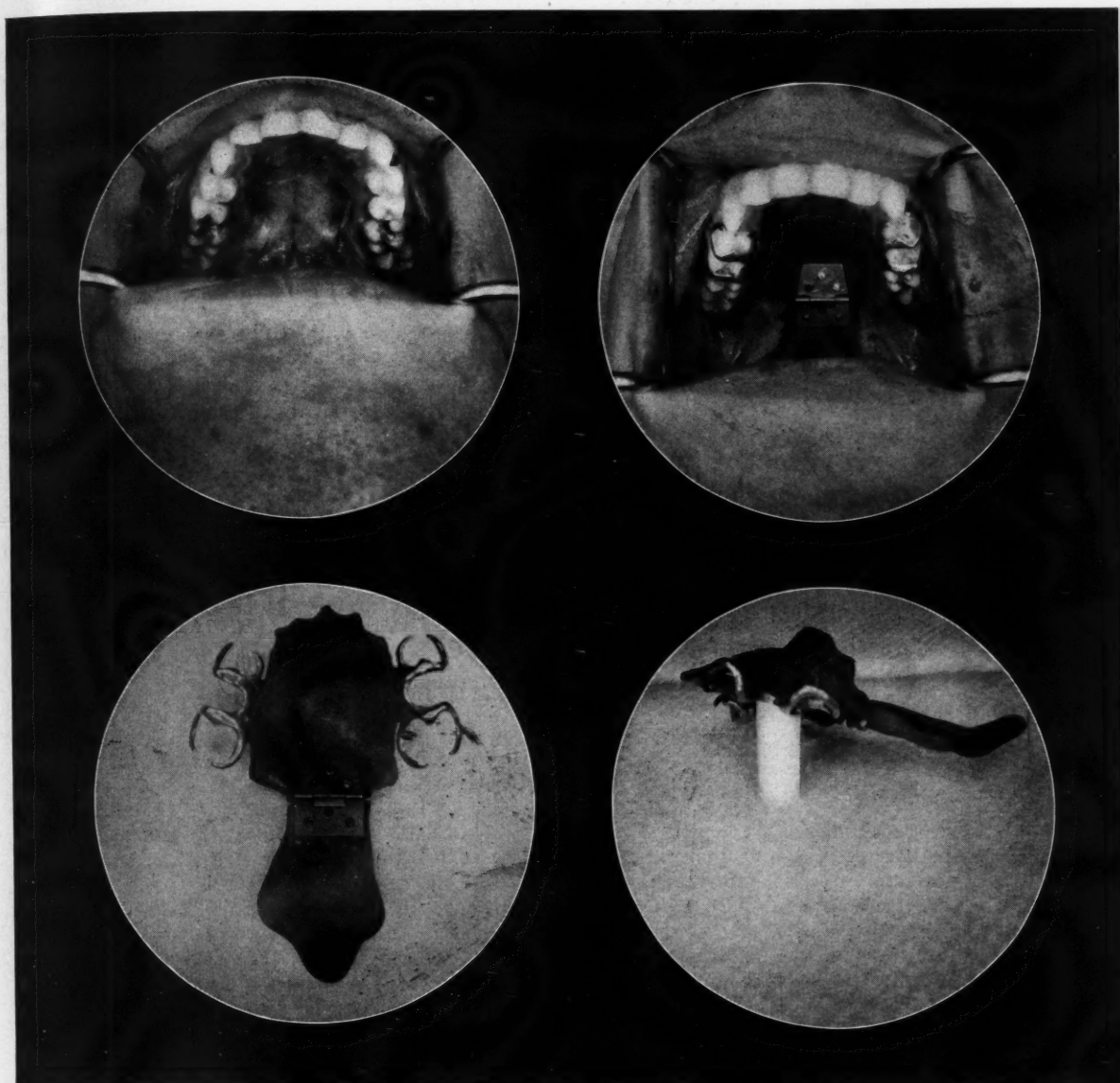
The velum is sometimes made hollow if constructed in vulcanite.<sup>5</sup> This

procedure takes considerably more time. A light and strong velum can be made of gold dust rubber, vulcanized at low temperature for a longer time (2 hours). The time and temperature are as follows:

½ hour at 270 degrees
½ hour at 280 degrees
20 minutes at 290 degrees
20 minutes at 300 degrees
20 minutes at 320 degrees

<sup>4</sup>Allen, A. G.: The Prosthetic Treatment of Cleft Palate in Children, *D. Mag. & Oral Top.* 49:1283-1288 (December) 1932.

<sup>5</sup>Graham, R. P.: An Obturator and Denture Restoration of an Extensive Cleft Palate, *British D. J.* 53:223-224 (February) 1932.



#### CASE 2:

Fig. 5—View of patient's mouth.

#### Impression

The impression can be taken in either plaster or any of the hydrocolloid materials. It is not necessary to obtain an impression of the soft palate area as there is always distortion. A correct impression must be taken of the existing hard palate and into the cleft to include the inferior turbinate bones.

#### Construction of Appliance

1. The cast is made in the usual manner.

2. One and one-half thicknesses of hard base-plate wax is adapted to the hard palate area and the posterior border terminating at the junction of the hard and soft palate areas.

3. The velum is formed from a section of soft counter-wax, about a fourth inch thick, which is luted to the wax obturator.

4. This wax obturator and velum are placed in the patient's mouth with a little adhesive powder, and the patient is asked to swallow and to pronounce hard "g" and "k" sounds.

5. The wax is removed from the mouth and the soft wax trimmed wherever the soft palate tissues leave an imprint. This operation is repeated and repeated until there is no gagging and the sides of the soft wax velum are in contact with the proximal edges of the divided soft palate flaps. This position must be obtained at the end of the act of swallowing. The wax velum is then at the correct angle with the wax obturator.

6. A section of wax is formed on the nasal side of the wax obturator to

Fig. 6—Appliance in place.

Fig. 7—View of appliance; tongue surface.

Fig. 8—Side view of appliance.

form a part of missing nasal septum.

7. The waxed obturator and velum are placed on the cast, and clasps and teeth are fitted to place.

8. The case is then finished in the desired material. If the material is vulcanite or a pink denture base material, the velum is sawed from the obturator at their junction with a thin-bladed saw, and a previously made gold hinge is screwed to place.

9. One end of a thin gold leaf spring is screwed to the nasal surface of the velum, so that the other end of the spring comes in contact with the obturator. This spring throws the velum back to its normal position after each act of swallowing.

In the first part of the act of deglutition the tongue carries the velum backward and upward to close the nasopharynx almost completely. When the tongue releases its pressure

to assume its normal position, the spring forces the velum to its original angle.

#### Report of Cases

CASE 1—A woman, aged 28, presented herself after having had numerous surgical attempts to close a cleft from the time she was 6 months old until 18 years of age. All the attempts were unsuccessful. There was a complete cleft through the hard and soft palates with a great deal of cicatricial tissue in the soft palate region. There was also a unilateral harelip which had been successfully treated. The upper left lateral incisor was congenitally missing and there was a marked prognathism (Figs. 1 through 4).

CASE 2—A man, aged 22, presented himself after having had three surgical attempts to close a cleft. The

third attempt was almost successful, except for two subsequent buttonhole openings about half way between the midline of the palate and the teeth on each side. The existing soft palate tissue had contracted anteriorly leaving a short curtain of tissue. The original cleft was complete through the hard and soft palates, but did not extend through the premaxillary fissure; thus there was no harelip. This patient's dentition and occlusion were excellent, which is unusual in these cases.

Because of the partial closure of this cleft, the hinge necessarily had to be placed on the tongue side of the denture and a stop used in the hinge instead of a spring (Figs. 5 through 8).

468 Delaware Avenue.

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## The Technique of Open-Drop Administration of Vinyl-Ether

(Continued from page 148)

cause of its rapid induction, the transition in depth of anesthesia occurs so speedily that careful observation is essential. There is little if any excitement. The stage of excitement is quickly bridged.

Eye signs are unreliable. Although the eyelids as well as the muscles of the eyeball may move in a manner suggesting light anesthesia, there is nevertheless a muscular relaxation sufficient for surgery (Fig. 10). The blinking and movement of the eyeball may easily mislead the anesthetist into the belief that sufficient depth of anesthesia has not as yet been obtained. As a matter of fact, the patient may stare at the anesthetist in an apparently intelligent manner (Fig. 11).

The eyeball is usually lacrimated

and glassy in appearance (Fig. 12). A gurgling noise may emanate from the throat. The patient's face is usually flushed, marking an astonishing lack of anoxemia. Vomiting is rare.

Recovery takes place with the minimum of postoperative effects. Excitement is more of an hysterical than physical nature and the patient is suddenly coherent and quiet (Figs. 13 and 14).

The anesthetist should be prepared at all times for emergency measures with vinyl-ether as with any other general anesthetic (Fig. 15).

Hypertensive heart, extensive kidney disorders, acute respiratory infections, diabetes should be detected and special consideration given. When possible, physical examination and preoperative care should be given.

Vinyl-ether is a valuable agent in the hands of a trained anesthetist who has a sound foundation in the science and art of anesthesia, and who is able to recognize, through experience, the classic symptoms of anesthesia. Indiscriminate use and careless handling is to be discouraged. A thorough study of the pharmacology and clinical application of vinyl-ether should first be made in order that the anesthetist may get the "feel" of this agent. When vinyl-ether is used for the removal of deciduous teeth, it will be found that as the patient is anesthetized the administration may be discontinued, and the teeth removed within an interval of a minute or a little more.

Walnut Park Plaza.



# The Editor's Page

NOWADAYS WE HEAR a great deal about the need for the dentist to become biologically minded. Exactly what does that mean? What does a biologist do and what is the biologic approach? Alfred H. Washburn in his enlightening paper on the place of child research in medicine, given before the Institute of Medicine of Chicago, described the biologist as follows: "... he must have learned to anatomize intelligently during the course of his analysis, but he must also have learned how to synthesize, and synthesis . . . always involves the living organism as a whole." A biologist should "see the organism as a whole individual in all its various complexities of function and in relation to its environment." Dental disease, then, in the light of this concept takes on a different significance. Dental disease cannot be studied by a method of cross section, by merely taking people at a given stage of life in a given geographic area or in given ethnologic groupings. The study of dental disease must be longitudinal, rather than as a cross section—a study based on the observations of years. As Washburn states the case, "Time is also of the very essence of growth. We are studying the first twenty years or more of the human life cycle by following individuals through it. It must be obvious, then, that final synthesis in terms of the mature person as a whole living organism must await the verdict of time. McKenzie stated the first principle of his investigations as the 'wait and see' policy."

To study the major dental problem, namely dental caries, requires biologic integration of dental science with the other biologic sciences. It requires social integration, a study of the person as a part of functioning society. Finally, it requires time and money. Only in an endowed university is it possible to project the study of dental disease over a long period and only in a medical center is it possible to have the proper biologic integration. A dental research project cannot be carried out on an isolated island of scientific activity.

Approaching the ideal in the study of dental disease is the enterprise of the Walter G. Zoller Memorial Dental Clinic of the University of Chicago. This clinic has been operating under the directorship of James Roy Blayney since

December, 1936, with the three million dollar fund created by the late Walter G. Zoller. Doctor Blayney came to this position with a rich biologic background gained from a wide experience at the University of Illinois College of Dentistry. Under the terms of Mr. Zoller's will, the Zoller foundation was to attack the problem of dental disease so that the greatest number of persons could ultimately profit. Obviously this would not mean the establishment of a huge free clinic or even several free clinics, where, at the most, only a comparatively few persons could be served. Doctor Blayney conceived of the immediate activity as a qualitative study rather than a quantitative one. He would take a few people on a cooperative basis and give them every possible form of dental treatment necessary, provided their cases presented subjects for study. The patients treated at the Zoller Clinic must be indigent but they are never made to feel as paupers. They receive, to be sure, the highest type of professional service, and, in turn, they contribute their time and their dental problems to the study. They must return for observation whenever necessary.

Dental treatment, however, is only a small part of the activity of the Zoller clinic. The study of dental caries is being made by trained biochemists and bacteriologists; the study of the physiology of the dental tissues is being made by trained physiologists. Blayney and his associates believe that first we must have an understanding of the nature of the lesion which we call dental caries before we can attack the disease. We must understand the normal before we can comprehend the abnormal. In short, we must be physiologists before we can be pathologists.

Each person accepted for treatment at the Zoller Clinic is certified by a social worker. This means that the environmental forces likewise are studied in their possible relationship to dental disease.

Despite the attacks that have been made against capitalistic society, an undertaking such as this by Blayney and his associates at the Walter G. Zoller Memorial Dental Clinic can be had only in a capitalistic society, where profits from individual enterprise endow institutions for scientific research.

# The Dark Room Problem in the Small Office

RALPH PITTMAN, D.D.S., El Dorado, Arkansas

IN SOLVING THE DARK room problem in the small office, the primary consideration must be the amount of floor space available. My office space contains only 248 square feet. Into this is placed an  $8\frac{1}{2}$  by  $11\frac{1}{2}$  reception room with secretarial office space, a  $7\frac{1}{2}$  by 9 operating room, 5 by 7 desk space, a small dressing room, a laboratory,  $4\frac{1}{2}$  by 9, and a dark room. The office is not crowded. The addition of a dark room of the conventional design, however, would have been impossible. Moreover, there would not have been room for the portable type of cabinet. It was necessary to build a stationary cabinet (Fig. 1).

The laboratory shelving is made of 8 inch stock lumber. Two of these shelves were boxed and called the "dark room."

The space reserved was 24 inches wide, 14 inches from top to bottom inside, and 8 inches deep. The bottom was 38 inches from the floor (Fig. 2). A door was made to fit over the front and hinged at the top so that it would open upward and be out of the way when not in use. Into this door two 6 inch arm holes were cut the proper height from the floor, so as to be comfortable for the operator in either standing or sitting position. The operator's height will determine the position (Fig. 3). To seal the box, strips of parting stop were tacked around the door so as to fit snugly inside the opening and make the box light-tight.

Sleeves were made to fit the holes in the door by sewing black masking cloth to the inside of black or white rubberized cloth with a piece of elastic sewn into one end to fit the arm; 12 inches in length for the sleeves is sufficient (Fig. 3).

If processing is to be done by the time-and-temperature method, the peep hole in the top is not necessary. It is a decided convenience, however, in loading larger films into cassettes. One can be made from an old stereopticon picture hood. This, of course, must be fitted with ruby glass in place of its clear glass lenses, or it might

(Text continued on page 166)



Fig. 1—General floor plan of office, showing location of each piece of furniture and equipment. Tank and developing cabinet are above the floor behind the door in laboratory.

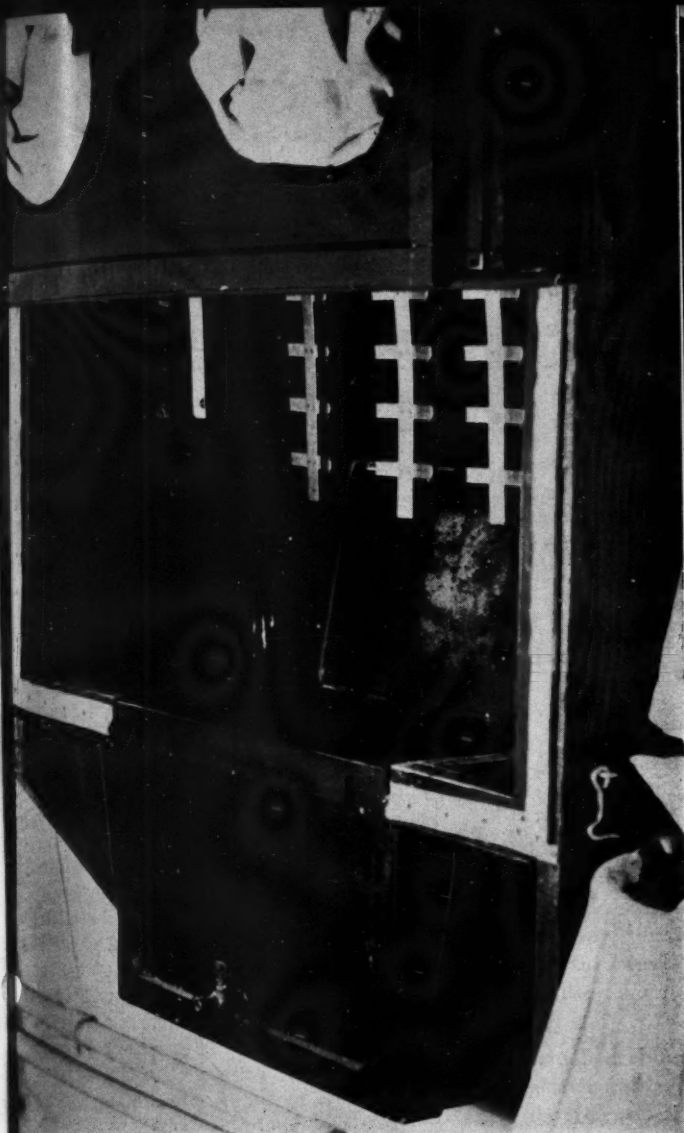


Fig. 2

Fig. 2—General view of construction, showing tank; glass top; door raised out of the way; sleeves and sleeve holes in the door; and developing racks in position.



Fig. 3

Fig. 3—Sleeves and peep hood in use. Note door fastened with hook, and door fastened on with butterfly hinges, so that crack can be sealed.

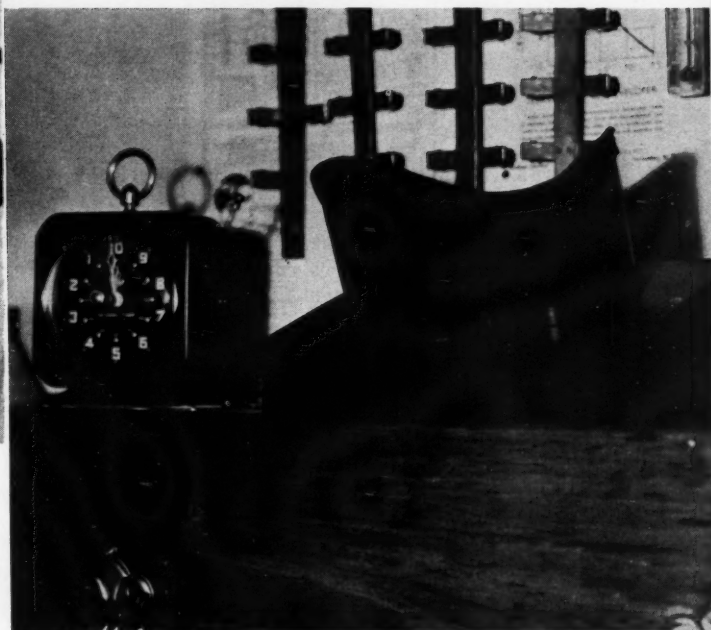


Fig. 4

Fig. 4—Peep hood containing ruby glass. This can be dispensed with entirely.

Fig. 5—Tank and strap iron tank brackets. Pet cock for drainage. Note tank slides out of box, so that it can be scrubbed and refilled.



Fig. 5



## CHINA—Adopts Modern Oral Hygiene Methods



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be possible to buy a hood already fitted, from a dealer in x-ray supplies (Fig. 4).

Inside the box and near the top is a half inch brass rod running the full width of the box, which serves as a rack for hanging film holders and the thermometer. A niche is cut in the bottom of the box into which the tank is fitted. Several types of tanks are available. I use a standard 12 volt battery box which can be obtained at battery stations for as little as 50 cents. After removing the wings and flanges, the inside of each section is sanded or filed smooth. To the center section near the bottom is fitted a one-eighth inch pet cock for drainage of the wash water. The tank is supported by two one-eighth inch strap iron brackets bolted to the bottom of the box, so arranged that the tank can be removed from the box for cleaning and changing the developing solutions (Fig. 5). A glass cover is fitted to the top of the tank to prevent evaporation of the solution and to prevent dropping unwrapped films into the solutions while placing them on the racks. Number 3 Eastman developing film racks with the bottom pair of clips cut off fit well for this 8 inch deep battery box tank. Inside the box is fitted a small safe light. This light, however, is rarely used inasmuch as 90 per cent of our processing is done by the time-temperature method. The battery box tank sections hold about 2 quarts of solution, thus making the gallon size powders go twice as far. The water in the center section is changed after each batch of films is processed. In the summer, two handfuls of ice placed in the wash water section will cool the solutions to the proper temperature in about one hour. In winter, the temperature of the box remains around 70 degrees.

Although this outfit seems small, it has served me well. All types of films, including 5 by 7, are processed without difficulty.

First National Bank Building.

A new (and complete) edition of the charts "The Education of the Dental Patient" now available. See pages 178-179-180.



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### NOTES ON THE

## Cuff

Feb. 25—From the American Dental Society of Greece comes the following unusual and courteous invitation to ethical American dentists:

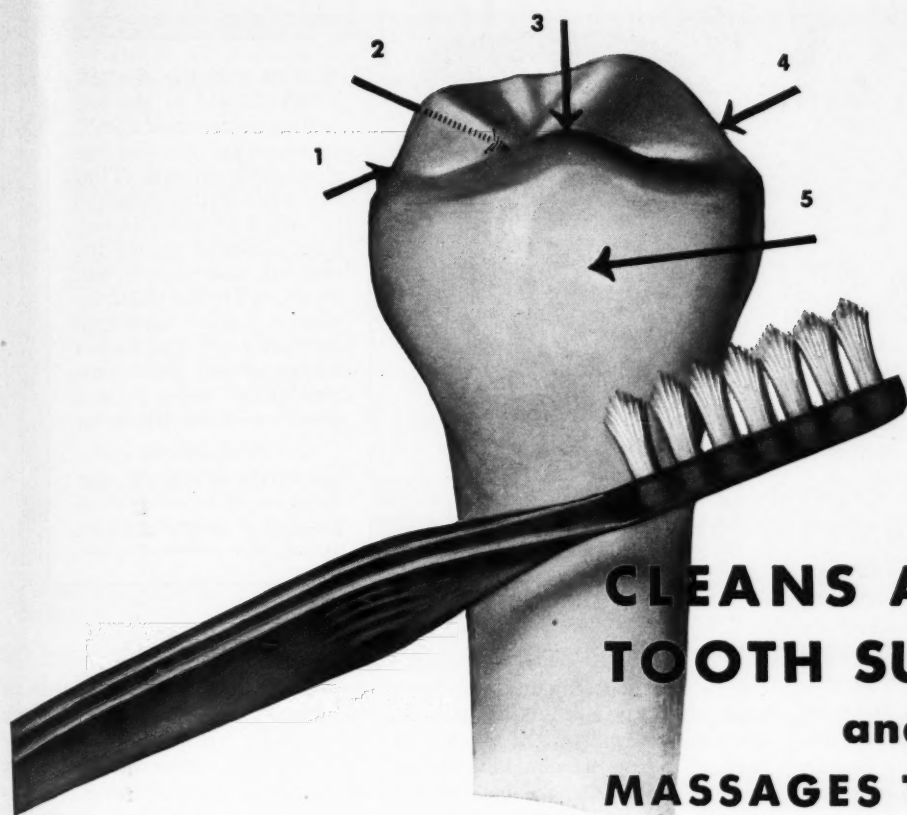
"I take the opportunity to write to you as the President of the American Dental Society of Greece, announcing that this organization is founded since 1926. Our dental society besides its professional activities would like to have the honor to give hospitality to a group or to any ethical practitioner who by chance may visit Athens, the glorious old city. It would be a great pleasure to us if we could have such an occasion to act as host to them. I am sure that you will take into consideration our appeal and soon we may have among us an American brother. I am at your disposal to give further information on any subject about Greece which interests any one of your readers.

(Signed) "JOHN BERBERELLIS, D.M.D."

Feb. 28—Yesterday was Sunday. The calm of many readers of the self-selected "World's Greatest Newspaper" must have been disturbed by the "horror article," THE DOCTOR'S DIARY. This is a translation from the German and describes the spirochete-by-spirochete account of various persons infected with the undulating *Trep. pallidum*. It is well enough to carry on with the propaganda regarding venereal diseases and to drag these conditions out into the open and call them by their real names. Recently however, I have heard of children who asked their father, "What is syphilis? We see that word in the newspapers so much." Father who was of the old euphemistic school blushed a deep red and talked rather vaguely of catching things from drinking glasses, lipsticks, and in the public rooms of railroad stations. Father was criticized by a childless physician friend who contended that children should have such questions answered directly at whatever age they are asked; that children should be told that syphilis is a sex

(Continued on page 170)





**CLEANS ALL FIVE  
TOOTH SURFACES  
and  
MASSAGES THE GUMS**

## **RUBBERSET'S DOUBLE DUTY TOOTH BRUSH**

Brushing must clean all five tooth surfaces and it must stimulate the gum tissue. Rubberset's Double Duty Tooth Brush effectively serves both purposes.

***The Teeth***—Small brush head with wide-spaced knots of long, fine resilient bristles permits cleansing penetration into otherwise inaccessible spaces.

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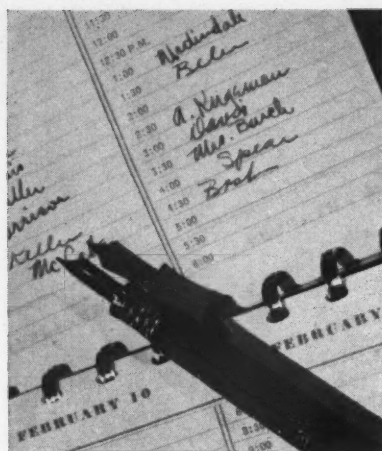
Rubberset's Double Duty Tooth Brush, designed with the help of over 1,000 dentists is entirely worthy of your recommendation to patients for home care of teeth and gums.

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General practitioners who have been operating with the aid of McKesson analgesia have seen its value reflected in fewer broken appointments and more patients. The new McKesson Easor reduces the technic of analgesia to its simplest terms. It provides a completely patient controlled procedure to eliminate nervous tension and to control the pain and discomfiture of operative dentistry.

Its flexibility is such that it can be used with *Nitrous Oxid*, and *Air*, or with *Nitrous Oxid*, *Air* and *Oxygen*. For either of these technics, controls are positive, assuring a non-varying, predetermined dosage. The Easor provides advantages never before built into an analgesia machine.

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● You can use **SILTEX DENTSTONES** to the last cutting surface and they'll be sharp and keen in cutting tooth enamel. They are centrally mounted to insure accuracy in cutting. They're noted for running true—never dull or glaze. The special combination grit developed for dental purposes makes them more economical to use. . . Your dental dealer sells them.

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disease. Without making any pretense at being a child behaviorist, one wonders what might happen by implanting another phobia upon the growing child. Will the fear of the spirochete on every door knob and on every lipstick make children neurotics and shadow their physiologic lives in later years?

*March 7*—Young people do have cancer! Hall and Bagby have recently reported 134 cases of cancer in persons under 30. Each one of these cases was confirmed by microscopic examination. Of these 134 young persons who had malignant disease, sixteen showed cancer of the mouth area, divided as follows: upper lip, 2; lower lip, 10; mouth and tongue, 4. When we dentists see a "cold sore" that doesn't heal, an eroded area on the tongue or in the mouth, any lesion, in fact, which is slow in healing, regardless of the age of the patient, we must consider malignant disease as a possibility. Hall and Bagby make this warning: "The age of the patient must not influence one in procrastination and 'watchful waiting.'"

*March 11*—On the day that Hitler seized Austria, battles of another kind were also being fought in the United States: 23,000 young men in the vast area that stretches from the Alleghenies to the Rockies and from the Canadian boundary to the Gulf of Mexico entered the Boxing tournament to fight for a pair of Golden Gloves. Of the 23,000 only eight would

be champions; the others would be "also ran." Every nationality, every color, every creed was represented by these boys; there were no blocks or claques of national rooters; no divisions into ethnologic fantasies. Every boy was on his own and by himself when he fought for a Golden Glove. There is no aloneness comparable to that in the boxing ring. The frontiers of America may be gone; there is no more prairie to break or wilderness to clear, but there is alive the spirit that is America in such united and freely competitive groups. The intelligentsia sometimes laugh scornfully about flag-wavers. But on this ominous day when force seeks to rule the world, the flag raising before the final Golden Glove bout and the ringing "land of the free and home of the brave" challenges even the intelligentsia to a deeper faith.

*March 16*—We have tried just about everything to control dental caries. We have been battling bacteria, stressing nutrition, scouring tooth surfaces, but apparently we missed the chances in osteopathy. Now we learn that what is needed to control the calcium-phosphorus ratio is pancreatic stimulation. Tilt the dental chair; pull off the arms; roll up your sleeves, and go to work on your next patient with rampant tooth decay with the following technique:

"Pancreatic stimulation consists of  
 (Continued on page 173)

raising the second, third, fourth and fifth ribs. With the patient lying on the back, stand on the left side and place the right hand on the angle of the upper dorsal ribs. Have the patient reach up and place the left hand on your shoulder. With your left hand placed on the angle of the ribs just below the right hand, step back and at the same time apply pressure at the angle of the ribs. By the use of the pectoral muscles and the patient's arm as a lever, a marked movement of the upper dorsal ribs is obtained, which by the anatomical arrangement through the chain ganglia produces a marked stimulation of the islets of the pancreas." If you are afraid of a slap in the face or of being misunderstood when you instigate this treatment, refer the patient to your nearest osteopath. The article describing this treatment is entitled, *WILL SPECIFIC OSTEOPATHY CONTROL DENTAL CARRIES?* by Stanley G. Bandeen, D. O., writing in the *Osteopathic Profession* of February, 1938—pages 16 and 17, if you are skeptical.

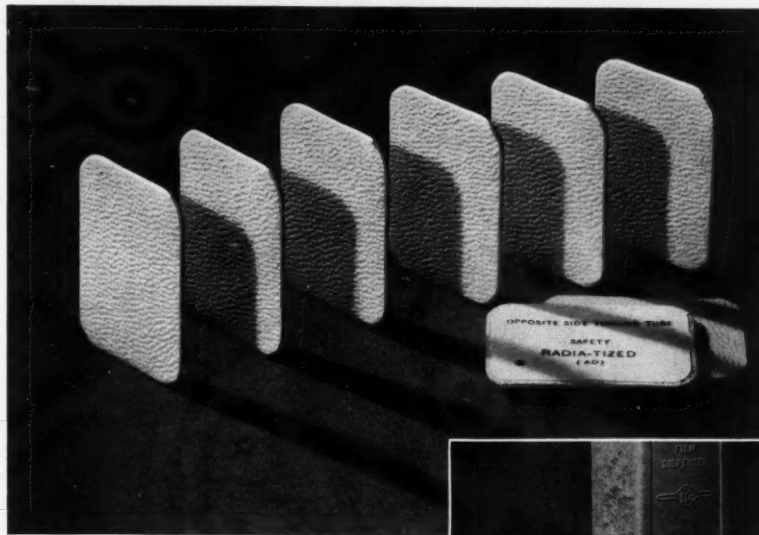
March 21—Recently we commented in this column on Mr. Stuart Chase's *TYRANNY OF WORDS*. Mr. Chase suggests a life of "semantic" discipline which means an attempt to communicate and to receive ideas accurately. To do this, it is necessary to employ language in which we are conscious of our terms; to use words as obvious symbols of the same "referent" (object in mind) that is understood by our listeners; to define our terms concretely, not in abstract synonyms; to avoid abstractions and emotional catchwords; to strive to grasp essential meanings and to convey them in unequivocal expressions.

Mr. Chase says that a great deal of our unhappiness and strife in the world, he believes, is the result of "communication failure." We tear each other's hair out and swap blows because we mean one thing and the other fellow means something else, although we are using the same words. Mr. Chase wants us to be specific, definite, concrete, to employ the experimental approach and restraint of scientists.

Three "communication failures" are typified in recent letters: A dentist in New Jersey commenting on the article, *CAUSES AND TREATMENT OF HYPERSENSITIVE DENTINE* (*DENTAL DIGEST*, February, 1938), says that we really meant "hypersensitive

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Please Note  
SPECIAL ANNOUNCEMENT  
On Pages

178 - 179 - 180

enamel" after all. He says, "I feel there must be some mistake in the title. To my conception hypersensitive dentine, which is usually encountered while preparing a cavity, is treated with local anesthesia or with one of the desensitizers. Does not the editorial staff mean 'hypersensitive enamel'? Please correct me if I am wrong." We were talking about one thing and this dentist was thinking about something else. The enamel, of course, is not supposed to be supplied with receptors of pain. The communication failure here is a fundamental one—lack of knowledge of the nature of dental tissue.

The second letter was from a dentist in Wisconsin who comments on an editorial that appeared in the September number of this magazine. Because we suggested that sulfanilamide be used only in cooperation with a physician experienced in the use of this drug, inasmuch as disastrous hemotoxic consequences have been reported, this dentist felt that we were foisting an inferiority complex on dentists. Here was our answer in part: "It would seem that dentists, not being prepared to treat such conditions as optic neuritis, acute hemolytic anemia, and various eruptions that may follow the use of this drug, would be on the safe side if they had a physician in consultation with them in those cases in which they might use sulfanilamide. As a matter of fact, to have the physician's cooperation in these cases is a form of self-protection. I never feel that there is anything degrading in seeking counsel and help from someone who is better prepared to do a job than I."

The third letter is on the side of the preposterous and comes from a dentist in New York: One Henry W. Ruoff, M.A., Litt.D., D.C.L., editor-in-chief of *The Circle of Knowledge* whatever that may be, writing about the hippopotamus, makes this statement, according to my New York correspondent: "... its teeth are worked like ivory, and are especially used for the manufacture of artificial teeth." A patient, reading *The Circle of Knowledge*, came across this statement. This patient is currently in need of dentures and stormed to her dentist, "No hippopotamus teeth for me, please." The dentist said that in his twenty-three years of experience, he never saw the teeth of the hippopotamus.

(Continued on page 176)



## WHAT TO DO WITH DENTURES

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#### THE DENTAL DIGEST

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mus advertised for sale for use in the construction of dentures. The original factual error gave rise to a series of communication failures. There aren't enough hippopotamuses in the world to supply the denture needs of the population. It would seem to be cheaper to manufacture porcelain teeth than to keep a herd of hippopotamuses in the backyard for tusk purposes.—E. J. R.

#### DENTAL MEETING

### *Dates*

Pennsylvania State Dental Society, seventieth annual meeting, Benjamin Franklin Hotel, Philadelphia, May 3-5.

Indiana State Dental Association, eighty-first annual meeting, Claypool Hotel, Indianapolis, May 16-18.

American Dental Society of Europe, Stockholm, Sweden, August 1-3, 1938.

The State Board of Registration and Examination in Dentistry of New Jersey will hold its annual examinations, commencing June 27, and continuing for five days thereafter. Complete details can be secured from Walter A. Wilson, D.D.S., 148 West State Street, Trenton.

American Association of Orthodontists, thirty-sixth annual meeting, Roosevelt Hotel, Los Angeles, California, July 11-14.

American Dental Association, annual meeting, St. Louis, Missouri, October 24-28.

American Academy of Restorative Dentistry, St. Louis, Missouri, October 22-23.

Kansas State Dental Society, annual meeting, Wichita, April 24-27.

Wisconsin State Dental Society, annual meeting, Milwaukee, April 25-28.